

Modeling atrazine occurrence in shallow ground water in agricultural areas of the United States

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A linear-regression model for predicting the occurrence of atrazine in shallow ground water in agricultural areas throughout the United States was developed from (1) data on atrazine occurrence in 52 agricultural study areas, and (2) geographic information on atrazine-use intensity, presence of artificial drainage, amount of agricultural land, and soil characteristics (permeability and water-holding capacity). The intensity of atrazine use accounted for only 7 percent of the variation in observed atrazine occurrence, whereas variables describing soil characteristics and drainage practices accounted for nearly 50%, an indication that atrazine use alone is an insufficient predictor of occurrence because soil characteristics and drainage practices strongly affect atrazine transport to shallow ground water. The model not only identifies the primary factors governing transport of atrazine to ground water, but also identifies areas of likely occurrence for future monitoring.